



The “Human-animal” Relationship in Psychological Definition Chains

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Summary. The article presents the results of research on definition chains carried out among Polish and German students. Definition chains are systematized hierarchical collections, in which the next lexeme is the superordinate of the previous one, e.g.: Alsatian wolfdog – dog – animal – living creature. The research on definition chains was initiated by R. Martin, French linguist, in the 1970s. Similar analyses were conducted in Poland and Germany 10 years later. The text draws attention to both the inclusive chains, as well as those in which the relation of inclusions does not occur. Non-inclusive definition chains, referred to as psychological chains, indicate the occurrence of the features related to the lexeme of the lowest level, which belong to the linguistic picture of the described word. The relation between “human-animal” and the common top-level domains in both language groups deserve special emphasis.

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The definition chain is a hierarchical chain of superordinates for every chosen lexeme in a given pattern such as Alsatian *wolfdog* – *dog* – *animal* – *living creature*; which are distinguished in next definitions as *genus proximum* which are in the mutual relation of inclusion (Sambor, Zagrodzka 1993: 305).

Theoretical foundations

The father of this research method is French linguist Robert Martin. In his 1974 publication he analysed dictionary definitions of nouns, distinguished in the elements in line with primary elements and elements differing from them. From a monolingual French

dictionary, he chose a set of 1723 nouns. Within their definitions, he searched for genus proximum. Next, the noun he found, he treated as a next noun for which he looked for the primary element. In Poland and in Germany, the first studies of hierarchical chains were made in the 1980s (*Definitionsfolgen und Lexemnetze* 1993: 49–64).

We have to look at the fact that the occurrence of connections to the primary element (*genus proximum*) in the hierarchical chain makes the occurrence of typical elements for superordinates (*differentia specifica*) a necessity. In the *Encyklopedia językoznawstwa ogólnego* (EJO 1999: 109) we read that both elements lead to a classical logic definition, which explains the meaning of a name by giving it a broader name (*genus*) and the specific definition (*differentia specifica*). If the rule of building hierarchical chains is constant in referring to prior definitions, we can assume that different elements will have their own cultural specifications. In these, hidden cultural contexts are hidden which are responsible for building specific levels of categories and different elements in the structures responsible for "subject conceptualization in language" (Bartmiński, Tokarski 1993: 49). As will be shown, this means that in word meaning assuming or waiting for users of hierarchical language in the world and accepted values.

G. Habrajska (2000: 78) draws attention to the essential disadvantage of vocabulary definition chains, which is the limited number of possibilities to examine them due to the fact that they can be analysed only "upward" to the general meaning. As a result, vocabulary words do not always refer to a basic level. This difficulty can be solved by making psychological definition chains through experimentation. J. Sambor and T. Zagrodzka (1993) presents a description of a survey in which participants made definition chains for lexemes given by the researchers. The aim of their experiment was the reproduction of the linguistic picture of plants that the participants had in their minds. In that way, the psychological definition chain makes it possible to see the cognitive (epistemic) meaning.

Method of investigation

We replicated this experiment with first-year university students from Poland and Germany. They were given the task to make a definition chain for given 70 lexemes (names of animals). They made 16909 chains, of which we had 8357 chains from Polish students, and 8552 chains from their German colleagues.

The definition chains consist of special lexemes which following each other in levels x_n for example:

- 1) *dog* (x_1) – *mammal* (x_2) – *animal* (x_3)
- 2) *dog* (x_1) – *animal* (x_2) – *living creature* (x_3)

In the following examples, it is easy to see, that x_n are not abstraction levels because the given lexeme (in our case: *animal*) can be found at different levels. From here on, we will call the x_n levels in definition chains "lexemes levels" (Sambor, Zagrodzka 1993: 307).

Now we will look at the inclusion phenomenon in the formation of change chains. We must remember that the participants in the task had examples of chains. These examples were not connected to living creatures but they illustrated the phenomenon:

- 3) Doll: *doll – toy – thing*
- 4) Bread: *bread – food*
- 5) Champignon mushroom: *champignon mushroom – mushroom – food – thing*

The examples presented above involve a few aspects of making the definition chain. (3) and (4) refer to artefacts and knowledge of the participants. They are typical inclusive chains. In Example (5) a simple connection between elements from lexemes levels is slightly modified: although Champignon mushroom is a mushroom and they can be eaten, every language user is aware that we differentiate between edible mushrooms and those that are poisonous. In that way (without verbal encouragement) it was shown that it is possible to create chains which are not fully inclusive, nevertheless, since they refer to common knowledge and the participants' experiences, are culture-motivated. In the answers provided by the students, both inclusive definition chains (IDC) and non-inclusive (NDC) were found. The differences in the amount in both language groups were significant. The participants from Poland made many more NDC (55,7%) than IDC (44,3%), whereas their German counterparts made NDC (29%) and IDC (71%).

In the remaining portion of the paper, we will demonstrate how “human-animal” relations are conceptualized differently in NDC and IDC. When the lexeme finds it superordinate, the inclusive chains present these relations at the level of x2. In the NDC we describe the connection to superordinate lexemes (animal) from the right side because in this case, the chains contain attributives of animalism. In IDC superordinate lexemes of “animal” are more abstractive attributes of animalism and they do not bring any important features essential to describing the relationship which interests us.

Inclusive definition chains

Animals live next to humans and the whole structure of the category is not only known by humans but also mentally organized. When it comes to the amount, the greatest number of connections refers to this closeness, mostly by the meaning “close being” with the word “domestic”. In the results of the Polish students, we can see *zwierzęta domowe* (*domestic animals* /8/) and *domowe ssaki* (*domestic mammals* /4/). A very important group is *domowe ptaki* (*domestic birds* /15/), which belongs to *ptactwo* (*domestic flying animals* /1/). If we add to them, as an addendum, *hodowlane zwierzę* (*farm mammal* /1/) and *hodowlany ptak* (*farm bird* /1/), it can be seen that the anthropocentrism causes us to see the animals which live closely – on the farm. It must be added, however, that this picture is slightly tainted by *dzikie zwierzę* (*wild animal* /3/), *dziki ptak* (*wild bird* /1/) and *dziki kot* (*wild cat* /1/). Nevertheless, we should take their occurrence as an example of the underlying opposition domestic-wild. *Domestic* and *farm animals* bring humans advantages, which is why he keeps them near: defence (*zwierzęta obronne* /2/), field work (*zwierzęta robocze* /8/), and most importantly, they are a source of food /11/, in which an essential role is played by their taste (*smaczna ryba* /1/). In the case of birds, which are raised for their feathers, eggs and meat, the phrase *pożyteczny ptak* (*useful bird* /1/) occurred.

The opposition "farm-domestic" is seen in uncontrolled animals, where a lack of understanding of their behaviour makes them enigmatic. Encountering behaviour different from what is expected leads to the use of the phrases *szkodnik* (pest /15/) and *pasożyt* (parasite /3/). A lack of understanding also causes a feeling of danger from animals (*niebezpieczne zwierzę* /1/, *niebezpieczny ssak* /1/).

Similarly, answers provided by German students also show a division between *wild animals* (*Wildtiere* /45/) and *domestic* (*Haustiere* /98/). To the *wild animals* mentioned above we have to add *wild birds* (*Wildvögel* /1/) but *domestic birds* (poultry – *Geflügel*) we mentioned earlier. To the *domestic animals* we have to add *Nutztiere* (useful animals /64/), within which we can find *Lasttiere* /3/ (working animals), and *Reittiere* /3/ (Horseback animals). We also notice the existence of *domestic animals* (*Zuchttiere* /2/) and *domestic cattle* (*Hausrinder* /1/).

When it comes to animals' benefits, the Polish language focuses especially on *food*. However, in the German language the lexeme – *Nahrung* was not as important, it was only mentioned two times. The *fish taste* (*Speisefisch*) was mentioned by one person, as was the word *tibit* (*Delikatesse*).

There is a *novum* to the Polish language: three words from hunting language appeared: *Damwild* /1/ (deer), *Rotwild* /6/ (deer and does), and *Schwarzwild* /2/ (boars and badgers).

Participants highlight a very negative relation between humans and insects, which in direct contact are *pests* (*Schädling* /3/), can bite (*stechendes Insekt* /2/), and are *oppressive* (*lästiges Insekt* /1/). Generally, insects are not liked (*unbeliebtes Insekt* /1/). This image of insects is nearly the same as the one in the Polish language.

Non-inclusive definition chains

Among Polish respondents, the most often used lexeme is *food* – we noticed on both the $x=3$ level /104/ and $x=4$ level /65/. References to *food* show the basic function of animals as a source of food for humans. The animal is *expresis verbis* *dostawca mięsa i mleka* (supplier of meat and milk /1/, *milk animal* /1/), *mleczno-wełnisty* (milk-wool /1/), and *żywiełka* (provider /1/). All of these phrases highlight the main advantages of possessing an animal. When it comes to more specific results, we can distinguish: *mięso* (meat ($x = 3$ /18/), $x = 4$ /3/), *mleko* (milk $x = 3$ /12/), *miód* (honey $x = 3$ /2/, $x = 4$ /1/), *jajka* (eggs $x = 3$ /1/), *tran* (cod-liver oil $x = 3$ /1/), *wełna* (wool $x = 3$ /8/). Among the products which we make from animals we can count: *pasztet* (mire $x = 3$ /1/) and *ser* (cheese $x = 3$ /2/). The next animal source is *skóra* (skin $x = 3$ /6/, $x = 4$ /1/), from which we can produce, for example, *shoes* (*buty* $x = 4$ /1/). To take advantage of some of these benefits it is necessary to kill the animal, a consequence of human economy. The reference to this fact can be noticed in the phrase *raised for slaughter*, which was mentioned once.

The other benefit is *ivory* (*kość słoniowa* /1/). This represents common knowledge about elephants that is often discussed in schools and in mass media. Its presence in our chain means not only identifying those benefits derived from direct contact with animals but also searching and accepting experience from around the world. This includes

knowledge of eating habits from different countries, illustrated by two phrases from level $x=3$: *Vietnamese food* /1/ and *Chinese food* /1/.

The German participants also strongly emphasize *food* – lexeme, *Nahrung* is seen on different lexeme levels on the right side in regard to *Tier* (animal) $x = 4$ /53/, $x = 3$ /45/, $x = 5$ /4/. *Animals* are also described as *producers of groceries* (*Nahrungsmittelproduzent* /1/). Among these groceries, *milk* caught our attention. On the $x = 3$ level, animals *give* (*Milchgeber* /3/) or *deliver milk* (*Milchlieferant* /2/), are *milk cattle* (*Milchvieh* /2/) and *milk animals* (*Milchtier* /2/), from which we take *dairy products* (*Milchprodukte* /2/). The importance of *milk* is shown by the *milk producer* (*Milchproduzent* /1/), which refers to the chain:

(6) *Kuh* (cow) – *Paarhufer* (bingulate) – *Tier* (animal) – *Milchproduzent* (milk producer) – *Nahrungsmittel* (dairy products)

In the answers of German students, we did not notice meat with the same prevalence. It was visible, but only as the name of a prepared dish:

(7) *Gans* (goose) – *Haustier* (domestic animal) – *Braten* (roast) – *Weihnachten* (Christmas)

(8) *Schwein* (pig) – *Säugetier* (mammal) – *Haustier* (domestic animal) – *Wurst* (sausage)

A different lexeme which was used and refers to meat is *essbar* (eaten /3/):

(9) *Schaf* (sheep) – *Huftier* (ungulate) – *essbar* (eaten)

(10) *Wildschwein* (boar) – *Huftier* (ungulate) – *essbar* (eaten)

Chain (10) confirms that the participants often pay attention to fewer evidence elements: lack of *meat*. However, this did not stop them from marking *game's meat* (*Wildfleisch* /1/) or *cattle farm* (*Viehhaltung* /1/), including *slaughter animals* (*Schlachttier* /1/). To the *food* element, we should add *honey*, which was mentioned twice in the German group: *Honigproduzent* (honey producer /1/), *Honigsammler* (honey collector /1/).

In addition, German students mentioned products which are from animals: *wool* (*Wolle* /1/) and *feathers*, to which the lexeme *Federlieferant* (feathers producer /1/) also refers.

Food is not only the one benefit which refers to contact between humans and animals. Apart from those listed earlier, Polish participants also mentioned *siła pociągowa* (train power /7/), adding this information to *transport* /4/, *rig* (*zaprząg* /1/), as well as *horse riding* (*jazda konna* /1/). The main benefit, which is used by humans is *power*, which was mentioned at levels $x = 3$ /5/ and level $x = 4$ /1/. As a result, the phrases *work* (*praca* /7/), be a *work tool* (*narzędzie pracy* /1/) and *work power* (*siła robocza* /1/) were used. The work that is done by animals is also defined as *trud* (labour /1/). For ages, humans have used animals in one more way – they have used their droppings for *fertilization* (*użyźnianie* /1/).

In German participants' answers, the lexeme *Nutztier* (useful animal) caught our attention. It appeared most often at levels $x=3$ /43/, $x=4$ /16/ and $x=5$ /1/. Besides

useful animals, we find *Nutzinsekt* (*useful insect* /1/), which appeared at level $x=3$. The "usefulness" of animals is often expressed by the work they do for humans – *Arbeitstier* (*working animal*) was seen to the right-sided of the *Tier* (*animal*) lexeme. Their work is that they can carry things – *Lasstier* (*beast of burden* /5/) or *draft animals* (*Zugtier* /1/). Some are marked as both draft animals and beast of burden.

(11) *Ochse* (*ox*) – *Nutztier* (*useful animal*) – *Last-/Zugtier* (*beast of burden/draft animals*)

Their strength is used to *transport* (*Transport* /1/), when they, for example, carry a *cart* (*Wagen* /1/). They are used for *horseback riding* (*Reiten* /1/). See that the lexeme *Versuchstier* (*experiment animal, used in experiments*), which did not appear in Polish, was used by German students in three chains for example:

(12) *Ratte* (*rat*) – *Versuchstier* (*experiment animal*) – *Experimente* (*experiments*)

This lexeme is more closely connected to particular kinds of animals (for example *mouse*); here we note its presence strongly connected to lexeme *Tier* (*animal*).

Animals also provide entertainment. Those that work in the circus (*cyrkowiec* – *circus performer* /1/) are objects of admiration. Generally, they are used for play and they are often seen in this way: the lexeme *toy* (*zabawka*) appeared 21 times at level $x=3$ and once at $x=4$. Additionally, they are house *ozdoba* (*decoration* /1/) and a source of pride for their owners.

German language users only sometimes notice this function – the 'admiration' element is brought in by the lexeme *Publikum* (*audience* /1/), which admires animal performances, and *Spielzeug* (*toy*) was mentioned once.

Some of the animals are closer to people: human see them and treat them especially close. Polish students emphasized one particular feature in contacts with animals – *faithfulness* /1/, which was mentioned at level $x=3$ once, but in the analysis of particular species such as *Hund* (*dog*) it appeared many times. Those animals were often described as *friends* ($x=3$ /7/, $x=4$ /3/):

(13) *cat* – *animal* – *friend*

Friendship and faithfulness have one-sided character here – in the collected data, animals are seen as *man's helper* (*pomocnik człowieka* /2/), *companion* (*towarzysz* /1/), *defender* (*obronca* /1/), *caretaker* (*opiekun* /1/), *security guard* (*ochroniarz* /1/), *home security guard* (*strażnik domu* /1/) and *order keeper* (*stróż porządku* /1/). Participants paid attention to those features in their analysis. The suitable behaviour of animals is rarely connected to their character; instead, humans must influence it. This is confirmed with the appearance of the *training* lexeme on the $x=5$ level. It indicates animals' abilities which can be developed by humans:

(14) *malpa* (monkey) – *las* (forest) – *liana* (liana) – *zwierzę* (animal) – *tresura* (training) – *ZOO*

The *training* lexeme here arises from earlier levels, which provides information about the special ability to jump possessed by monkeys living in the African jungle.

In German participants' answers, close contact with animals is presented by NDC. In two of these we notice *friend* (*Freund*), once emphasized as *man's best friend* (*bester Freund des Menschen*). At this point, two observations must be shared. Firstly, in the Polish language, *przyjaciel* (*friend*) was mentioned more often. Secondly, this lexeme is not only connected with dogs, as in the German language, but also with other animals. This stands in contrast with the German language, in which animal closeness is generally exhibited by the *dog* (*Hund*); however, in the definition chains we found one example of a *horse* as a *faithful* creature:

(15) *Pferd* (horse) – *Treue* (faithful) – *Eigenschaft* (feature)

A *dog* can be *nice* (*liebevoll* /1/), a *faithful companion for man* (*treuer Begleiter des Menschen* /1/), be a *guard animal* (*Wachtier* /2/). The right side context of the lexeme *Tier* lets us see one more aspect of *human-animal* relations. This is the theory of evolution, where both human and animals are seen as having common ancestors:

(16) *Affe* (monkey) – *Tier* (animal) – *Ahne des Menschen* (human ancestor)

There are no such mentions in the Polish data.

The domestication process, which started thousands of years ago, let humans first use the phrase *domestic animals*. The same thing happened in our survey, for Polish students *zwierzę domowe* (*domestic animal* /9/) appeared at level x=3 and at level x=4 /7/. This is also a confirmation of two-elements of the chain, which end twice with the same phrase. Apart from *domestic animals*, Polish students also notice the existence of *ptactwo domowe* (*domestic birds* /3/), which are also close to humans. From these results we know that representants of domestic birds are often called *domestic animals*:

(17) *kura* (hen) – *zwierzę domowe* (*domestic animal*) – *hodowla* (*inbreeding*) – *istota żywa* (*living creature*).

The closeness between humans and animals is shown by the lexeme *domownik* (*householder* /1/), which is used for all creatures living in the house. This signifies a huge elevation of animals.

Also, among German participants *domestic animal* (*Haustier*) was often an element of NDC: We mostly noted its presence at level x=3 /32/, x=4 /18/ and x=5 /2/. *Haustier* was mentioned much more often than *domestic animal* and on more lexeme levels.

Based on the Polish participants' answers we can accept that the benefits which human can get from animals become a reason for *hodowanie* (breeding) /8/. Humans have duties such as giving animals *feed* /2/.

Not all animals can live on the farm and not all of them live in Poland naturally. From time to time we notice the lexeme *ZOO*, which indicates another kind of animals: *zwierzęta egzotyczne* (exotic animals /1/). There we can admire not only animals from other continents but also our national *dzikie zwierzęta* (wild animals x=3 /12/, x=4 /1/).

German students also mentioned *wild animals*. *Wildtier* (dzikie zwierzę) was noticed in 21 chains at level x=4 and 19 times at x=3.

We can also see the bond between humans and animals. We have to comment that *friendship* or *faithfulness* is not always the most important. Many animals were named *vermin* (x=3 /11/, x=4 /2/, x=5 /1/). Once, the word *szkodnik* (poacher /1/) was mentioned. Contact with some animals is linked with the words *odraza* (disgust /1/) and *smród* (stench /2/), resulting from animals and places they live. After closely reading this description, we can see man trying to bring more tidiness to the animal world. This is also indicated by the lexeme *brud* (dirt), which was mentioned by a participant at level x=3. Not knowing animals or their reactions are sometimes reasons for *lęk* (fear /1/). Mostly, in those cases, we call animals *niebezpieczne* (dangerous x=3 /7/, x=4 /1/). Direct contact does not have to finish with an animal attack for a human to be harmed. It is sufficient that animals bring *germs* (zarazki /1/) that cause illness. Animals are well-known to be creatures who can *hurt* (ranić /1/). This is done to meet their own needs (*hunting, polowanie*), as well as for humans.

The danger from contact with animals was also present in German. Animals were described as *dangerous* (gefährlich /1/), give germs of *rabies* (Tollwut /1/). They were often called as *vermin* (Schädling /1/) and sometimes, more precisely, the lexeme *Schadinsekt* (vermin insect /1/) was used:

(18) *Motte* (moth) – *Tier* (animal) – *Schadinsekt* (insect-vermin)

Nuisance from some species could be a reason for denying the positive side of animals:

(19) *Ameise* (ant) – *Tier* (animal) – *Ungeziefer* (insect)

Not everyone has had such experience from contact with animals as those described above. It is essential to look at the role of mass media in creating the image of animals. It is mainly thanks to television that the killing instincts of some species are known. Enthusiastically watched reports and documentaries on science TV channels inform and entertain many people who previously did not know about different animals' behaviour. Feature films are even more influential (for example, the *Jaws* movie was mentioned in the survey on many levels). Because such films make a story that involves people, the content given is more realistic. Among lexemes to the right-side of *animal*, *ludojad* (man-eater x=3 /1/x=4 /1/) draws attention. The dangerous side of animals was also shown in the chain:

(20) *kruk* (crow) – *ptak* (bird) – *zwierzę* (animal) – *śmierć* (death)

The connection between *kruk* (crow) and *śmierć* (death) is connected to cultural tradition, which links the feathers with the funeral clothes. In other chains, the relationship *kruk* – *śmierć* is nearer:

(21) *kruk* (crow) – *śmierć* (death)

(22) *kruk* (crow – *śmierć* (death) – *czarny* (black)

In the (22), the relationship with the colour is shown. But in (20) *śmierć* (death) breaks off from direct contact with the bird and is moved to a higher level – to the *animal*, which is dangerous for humans.

Among the analysed chains, we encounter another cultural connotation. An essential feature of the animal world is its' organization with *król zwierząt* (animal king /3/) on the top, on whose head is a *korona* (crown /1/). Animals are used as symbols (in German chains we note the existence of the lexeme *Wappentier* (armorial bearings animal). They play a particular role in *proverbs* /1/ indicating special features, which human do not want to express directly such as *mądrość* (wisdom) /2/ or *głupota* (stupidity) /1/. In Polish tradition, the symbol of wisdom is an owl, seen in this chain:

(23) *sowa* (owl) – *zwierzę* (animal) – *mądrość* (wisdom)

What is more, in chains with the beginning lexeme *wisdom* appeared nine times. Once it was noted with the lexeme *małpa* (monkey):

(24) *małpa* (monkey) – *zwierzę* (animal) – *mądrość* (wisdom)

Mentioned above, the lexeme *głupota* (stupidity) appeared, for example, in the chain

(25) *koza* (goat) – *zwierzę* (animal) – *głupota* (stupidity) – *ssak* (mammal)

This characteristic is also connected with the beginning lexeme: *osioł* (donkey), *gęś* (goose), *kaczka* (duck). German participants also note stupidity as an element of an animal's image:

(26) *Esel* (donkey) – *Tier* (animal) – *Dummheit* (stupidity)

In this language, *stupidity* also can be found in chains beginning with the lexemes *Gans* (goose), *Kuh* (cow), *Hering* (herring). In Polish, the connection between *stupidity* and *śledź* (herring) does not exist. We should add cultural facts which are described by the right-side contexts of the lexeme *Tier*: *Schimpfwort* (abuse). The Polish language knows the negative connotations to the *animal* lexeme (for example, *somebody behaves like animals an animal*). But *Willy Wulf* is a character from animation movies. We see it in the chains:

(27) *Hund* (dog) – *Haustier* (domestic animal) – *Willy Wulf*

This chain construction reflects the influence of the mass media, and the accented similarity of the fictional characters to reality relocates outside: *domestic animals* are (can/ should be) like *Willy Wulf* – funny and laughable. There is one more feature of the lexeme *animal*:

(28) *Ente (duck) – Vogel (bird) – Tier (animal) – Falschmeldung (false information) – Sache (thing)*

The inclusion breakdown in the chain above appears between level $x=3$ and $x=4$. In Polish, *Falschmeldung* is expressed by the figurative meaning of *kaczka (duck)* which means ‘inconsiderate and unmarked information given by the mass media’. *Falschmeldung* in the given chain does not exist in direct relations with the *duck* but moves onto another level. This exemplifies the inexplicability of language about animals (which in participants’ minds includes some information from mass media).

The important element of the meaning of animals are definitions for the young animals – *youngsters* /1/, the precise realizations of which (*teddy, dove, frog*) are used to love birds and children.

Concluding thoughts

The results presented from the definition chains illustrate a particular nature of non-inclusive chains by showing the relation “human-animal”. Inclusive chains, due to their hyponym-superordinate relations feature a smaller number of domains. Characteristic for both the German and Polish language is the variety of the domains in which animals are seen to participate. They are often common domains, which indicate affiliation to the same cultural group. Despite these differences, common usage in both languages was confirmed.

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